Helms

#12

RAW SEQUENCE LISTING          DATE: 05/21/2001
PATENT APPLICATION:  US/09/381,497A     TIME: 11:16:56

Input Set : A:\-317-1.app
Output Set: N:\CRF3\05212001\I381497A.raw

SEQUENCE LISTING

**ENTERED**

```
 4 (1) GENERAL INFORMATION:
 6       (i) APPLICANT: FitzGerald, David
 7                      Pastan, Ira
 8                      Mansfield, Elizabeth
 9                      Kreitman, Robert
11      (ii) TITLE OF INVENTION: Recombinant Antibodies and
12                               Immunoconjugates Targeted to CD-22 Bearing Cells and
13                               Tumors
15     (iii) NUMBER OF SEQUENCES: 15
17      (iv) CORRESPONDENCE ADDRESS:
18           (A) ADDRESSEE: Townsend and Townsend and Crew LLP
19           (B) STREET: Two Embarcadero Center, Eighth Floor
20           (C) CITY: San Francisco
21           (D) STATE: California
22           (E) COUNTRY: USA
23           (F) ZIP: 94111-3834
25       (v) COMPUTER READABLE FORM:
26           (A) MEDIUM TYPE: Floppy disk
27           (B) COMPUTER: IBM PC compatible
28           (C) OPERATING SYSTEM: PC-DOS/MS-DOS
29           (D) SOFTWARE: PatentIn Release #1.0, Version #1.30
31      (vi) CURRENT APPLICATION DATA:
C--> 32      (A) APPLICATION NUMBER: US/09/381,497A
C--> 33      (B) FILING DATE: 21-May-2001
34           (C) CLASSIFICATION:
40     (vii) PRIOR APPLICATION DATA:
37           (A) APPLICATION NUMBER: WO PCT/US98/05453
38           (B) FILING DATE: 19-MAR-1998
41           (A) APPLICATION NUMBER: US 60/041,437
42           (B) FILING DATE: 20-MAR-1997
44    (viii) ATTORNEY/AGENT INFORMATION:
45           (A) NAME: Weber, Ellen Lauver
46           (B) REGISTRATION NUMBER: 32,762
47           (C) REFERENCE/DOCKET NUMBER: 015280-317100US
49      (ix) TELECOMMUNICATION INFORMATION:
50           (A) TELEPHONE: (415) 576-0200
51           (B) TELEFAX: (415) 576-0300
54 (2) INFORMATION FOR SEQ ID NO: 1:
56       (i) SEQUENCE CHARACTERISTICS:
57           (A) LENGTH: 369 base pairs
58           (B) TYPE: nucleic acid
59           (C) STRANDEDNESS: single
60           (D) TOPOLOGY: linear
W--> 62   (ii) MOLECULE TYPE: DNA
65      (ix) FEATURE:
66           (A) NAME/KEY: CDS
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67              (B) LOCATION: 1..369
68              (D) OTHER INFORMATION: /product= "RFB4 heavy chain"
71      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 1:
73 GAA GTG CAG CTG GTG GAG TCT GGG GGA GGC TTA GTG AAG CCT GGA GGG        48
74 Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly
75  1               5                   10                  15
77 TCC CTG AAA CTC TCC TGT GCA GCC TCT GGA TTC GCT TTC AGT ATC TAT        96
78 Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Ala Phe Ser Ile Tyr
79              20                  25                  30
81 GAC ATG TCT TGG GTT CGC CAG ACT CCG GAG AAG AGG CTG GAG TGG GTC       144
82 Asp Met Ser Trp Val Arg Gln Thr Pro Glu Lys Arg Leu Glu Trp Val
83              35                  40                  45
85 GCA TAC ATT AGT AGT GGT GGT GGT ACC ACC TAC TAT CCA GAC ACT GTG       192
86 Ala Tyr Ile Ser Ser Gly Gly Gly Thr Thr Tyr Tyr Pro Asp Thr Val
87          50                  55                  60
89 AAG GGC CGA TTC ACC ATC TCC AGA GAC AAT GCC AAG AAC ACC CTG TAC       240
90 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr
91  65              70                  75                  80
93 CTG CAA ATG AGC AGT CTG AAG TCT GAG GAC ACA GCC ATG TAT TAC TGT       288
94 Leu Gln Met Ser Ser Leu Lys Ser Glu Asp Thr Ala Met Tyr Tyr Cys
95              85                  90                  95
97 GCA AGA CAT AGT GGC TAC GGT AGT AGC TAC GGG GTT TTG TTT GCT TAC       336
98 Ala Arg His Ser Gly Tyr Gly Ser Ser Tyr Gly Val Leu Phe Ala Tyr
99              100                 105                 110
101 TGG GGC CAA GGG ACT CTG GTC ACT GTC TCT GCA                          369
102 Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ala
103          115                 120
106 (2) INFORMATION FOR SEQ ID NO: 2:
108      (i) SEQUENCE CHARACTERISTICS:
109              (A) LENGTH: 123 amino acids
110              (B) TYPE: amino acid
111              (D) TOPOLOGY: linear
113      (ii) MOLECULE TYPE: protein
115      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 2:
117 Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly
118  1               5                   10                  15
120 Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Ala Phe Ser Ile Tyr
121              20                  25                  30
123 Asp Met Ser Trp Val Arg Gln Thr Pro Glu Lys Arg Leu Glu Trp Val
124              35                  40                  45
126 Ala Tyr Ile Ser Ser Gly Gly Gly Thr Thr Tyr Tyr Pro Asp Thr Val
127          50                  55                  60
129 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr
130  65              70                  75                  80
132 Leu Gln Met Ser Ser Leu Lys Ser Glu Asp Thr Ala Met Tyr Tyr Cys
133              85                  90                  95
135 Ala Arg His Ser Gly Tyr Gly Ser Ser Tyr Gly Val Leu Phe Ala Tyr
136              100                 105                 110
138 Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ala
```

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Input Set : A:\-317-1.app
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139         115                 120
142 (2) INFORMATION FOR SEQ ID NO: 3:
144     (i) SEQUENCE CHARACTERISTICS:
145             (A) LENGTH: 321 base pairs
146             (B) TYPE: nucleic acid
147             (C) STRANDEDNESS: single
148             (D) TOPOLOGY: linear
W--> 150     (ii) MOLECULE TYPE: DNA
153     (ix) FEATURE:
154             (A) NAME/KEY: CDS
155             (B) LOCATION: 1..321
156             (D) OTHER INFORMATION: /product= "RFB4 light chain"
159     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 3:
161 GAT ATC CAG ATG ACC CAG ACT ACA TCC TCC CTG TCT GCC TCT CTG GGA      48
162 Asp Ile Gln Met Thr Gln Thr Thr Ser Ser Leu Ser Ala Ser Leu Gly
163  1               5                  10                  15
165 GAC AGA GTC ACC ATT AGT TGC AGG GCA AGT CAG GAC ATT AGC AAT TAT      96
166 Asp Arg Val Thr Ile Ser Cys Arg Ala Ser Gln Asp Ile Ser Asn Tyr
167             20                  25                  30
169 TTA AAC TGG TAT CAG CAG AAA CCA GAT GGA ACT GTT AAA CTC CTG ATC     144
170 Leu Asn Trp Tyr Gln Gln Lys Pro Asp Gly Thr Val Lys Leu Leu Ile
171         35                  40                  45
173 TAC TAC ACA TCA ATA TTA CAC TCA GGA GTC CCA TCA AGG TTC AGT GGC     192
174 Tyr Tyr Thr Ser Ile Leu His Ser Gly Val Pro Ser Arg Phe Ser Gly
175      50                  55                  60
177 AGT GGG TCT GGA ACA GAT TAT TCT CTC ACC ATT AGC AAC CTG GAG CAA     240
178 Ser Gly Ser Gly Thr Asp Tyr Ser Leu Thr Ile Ser Asn Leu Glu Gln
179  65                  70                  75                  80
181 GAA GAT TTT GCC ACT TAC TTT TGC CAA CAG GGT AAT ACG CTT CCG TGG     288
182 Glu Asp Phe Ala Thr Tyr Phe Cys Gln Gln Gly Asn Thr Leu Pro Trp
183                  85                  90                  95
185 ACG TTC GGT GGA GGC ACC AAG CTG GAA ATC AAA                         321
186 Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
187             100                 105
190 (2) INFORMATION FOR SEQ ID NO: 4:
192     (i) SEQUENCE CHARACTERISTICS:
193             (A) LENGTH: 107 amino acids
194             (B) TYPE: amino acid
195             (D) TOPOLOGY: linear
197     (ii) MOLECULE TYPE: protein
199     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 4:
201 Asp Ile Gln Met Thr Gln Thr Thr Ser Ser Leu Ser Ala Ser Leu Gly
202  1               5                  10                  15
204 Asp Arg Val Thr Ile Ser Cys Arg Ala Ser Gln Asp Ile Ser Asn Tyr
205             20                  25                  30
207 Leu Asn Trp Tyr Gln Gln Lys Pro Asp Gly Thr Val Lys Leu Leu Ile
208         35                  40                  45
210 Tyr Tyr Thr Ser Ile Leu His Ser Gly Val Pro Ser Arg Phe Ser Gly
211      50                  55                  60
```

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Output Set: N:\CRF3\05212001\I381497A.raw

```
213 Ser Gly Ser Gly Thr Asp Tyr Ser Leu Thr Ile Ser Asn Leu Glu Gln
214  65                  70                  75                  80
216 Glu Asp Phe Ala Thr Tyr Phe Cys Gln Gln Gly Asn Thr Leu Pro Trp
217                  85                  90                  95
219 Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
220                 100                 105
223 (2) INFORMATION FOR SEQ ID NO: 5:
225      (i) SEQUENCE CHARACTERISTICS:
226          (A) LENGTH: 4 amino acids
227          (B) TYPE: amino acid
228          (C) STRANDEDNESS:
229          (D) TOPOLOGY: linear
231      (ii) MOLECULE TYPE: peptide
234      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 5:
236      Gly Gly Gly Ser
237      1
240 (2) INFORMATION FOR SEQ ID NO: 6:
242      (i) SEQUENCE CHARACTERISTICS:
243          (A) LENGTH: 33 base pairs
244          (B) TYPE: nucleic acid
245          (C) STRANDEDNESS: single
246          (D) TOPOLOGY: linear
W--> 248      (ii) MOLECULE TYPE: DNA
251      (ix) FEATURE:
252          (A) NAME/KEY: -
253          (B) LOCATION: 1..33
254          (D) OTHER INFORMATION: /note= "RFB4 VH5 heavy chain primer"
257      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 6:
259 GGACCTCATA TGGAAGTGCA GCTGGTGGAG TCT                                  33
262 (2) INFORMATION FOR SEQ ID NO: 7:
264      (i) SEQUENCE CHARACTERISTICS:
265          (A) LENGTH: 24 base pairs
266          (B) TYPE: nucleic acid
267          (C) STRANDEDNESS: single
268          (D) TOPOLOGY: linear
W--> 270      (ii) MOLECULE TYPE: DNA
273      (ix) FEATURE:
274          (A) NAME/KEY: -
275          (B) LOCATION: 1..24
276          (D) OTHER INFORMATION: /note= "gamma-CH1 heavy chain primer"
279      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 7:
281 AGCAGATCCA GGGGCCAGTG GATA                                            24
284 (2) INFORMATION FOR SEQ ID NO: 8:
286      (i) SEQUENCE CHARACTERISTICS:
287          (A) LENGTH: 54 base pairs
288          (B) TYPE: nucleic acid
289          (C) STRANDEDNESS: single
290          (D) TOPOLOGY: linear
W--> 292      (ii) MOLECULE TYPE: DNA
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RAW SEQUENCE LISTING                    DATE: 05/21/2001
PATENT APPLICATION:  US/09/381,497A     TIME: 11:16:57

Input Set : A:\-317-1.app
Output Set: N:\CRF3\05212001\I381497A.raw

```
295      (ix) FEATURE:
296           (A) NAME/KEY: -
297           (B) LOCATION: 1..54
298           (D) OTHER INFORMATION: /note= "RFB4 VH3 heavy chain primer"
301      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 8:
303 AGATCCGCCA CCACCGGATC CGCCTCCGCC TGCAGAGACA GTGACCAGAG TCCC              54
306 (2) INFORMATION FOR SEQ ID NO: 9:
308      (i) SEQUENCE CHARACTERISTICS:
309           (A) LENGTH: 27 base pairs
310           (B) TYPE: nucleic acid
311           (C) STRANDEDNESS: single
312           (D) TOPOLOGY: linear
W--> 314    (ii) MOLECULE TYPE: DNA
317      (ix) FEATURE:
318           (A) NAME/KEY: -
319           (B) LOCATION: 1..27
320           (D) OTHER INFORMATION: /note= "RFB4 VH3 dsFv heavy chain
321 primer"
325      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 9:
327 CCGGAAGCTT TTGCAGAGAC AGTGACC                                          27
330 (2) INFORMATION FOR SEQ ID NO: 10:
332      (i) SEQUENCE CHARACTERISTICS:
333           (A) LENGTH: 28 base pairs
334           (B) TYPE: nucleic acid
335           (C) STRANDEDNESS: single
336           (D) TOPOLOGY: linear
W--> 338    (ii) MOLECULE TYPE: DNA
341      (ix) FEATURE:
342           (A) NAME/KEY: -
343           (B) LOCATION: 1..28
344           (D) OTHER INFORMATION: /note= "RFB4 VH dsFv(cys) heavy chain
345 primer"
348      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 10:
350 GACCCACTCC AGGCACTTCT CCGGAGTC                                         28
353 (2) INFORMATION FOR SEQ ID NO: 11:
355      (i) SEQUENCE CHARACTERISTICS:
356           (A) LENGTH: 48 base pairs
357           (B) TYPE: nucleic acid
358           (C) STRANDEDNESS: single
359           (D) TOPOLOGY: linear
W--> 361    (ii) MOLECULE TYPE: DNA
364      (ix) FEATURE:
365           (A) NAME/KEY: -
366           (B) LOCATION: 1..48
367           (D) OTHER INFORMATION: /note= "RFB4 VL5 light chain primer"
370      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 11:
372 GGTGGCGGAT CTGGAGGTGG CGGAAGCGAT ATCCAGATGA CACAGACT                   48
375 (2) INFORMATION FOR SEQ ID NO: 12:
377      (i) SEQUENCE CHARACTERISTICS:
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**VERIFICATION SUMMARY**                    DATE: 05/21/2001
PATENT APPLICATION:  US/09/381,497A         TIME: 11:16:58

Input Set : A:\-317-1.app
Output Set: N:\CRF3\05212001\I381497A.raw

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L:32  M:220 C: Keyword misspelled or invalid format, [(A) APPLICATION NUMBER:]
L:33  M:220 C: Keyword misspelled or invalid format, [(B) FILING DATE:]
L:62  M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=1
L:150 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=3
L:248 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=6
L:270 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=7
L:292 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=8
L:314 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=9
L:338 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=10
L:361 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=11
L:383 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=12
L:405 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=13
L:427 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=14
L:450 M:246 W: Invalid value of Alpha Sequence Header Field, [MOLECULE TYPE:], SeqNo=15
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